

ABSTRACT

PCMm memory with a plurality of ultra-small solid electrolyte elements was disclosed. To make ultra-small solid electrolyte elements, a layer of composite-phase thin film is formed where a phase forms nano-size particles and embedded in another phase which forms a matrix layer. Then the nano-size opening was formed by etching the nano-size particles. Ultra-small solid electrolyte elements can also be made by co-deposition of unmixable dielectric and electrolyte materials.